the extractor and drawn out as the breech-block or plunger moves backward. This construction of shell obviates the necessity for starting the shell from the barrel at the moment of the explosion, as hereinbefore described with reference to the form of shell shown in Fig. 2, which has a fixed base, and is moved backward during the burning of the powder. The construction shown in Figs. 14 and 15, moreover, tends to prevent the shell of a cartridge from expanding under the force of an explosion, and thus reduces the power which would otherwise be required to draw the shell from the barrel. When cartridges having this movable portion or base e^3 are used, it is necessary that the construction of the breech-block or plunger should be so modified that it will move back for some distance independently of the extractors. This modification is illustrated in Fig. 14, in which the part c^7, carrying the rod C^2 and the extractors, is not integral with the breech-block or plunger C, as shown in Fig. 2, but slides on a rod, C^3, which is screwed or otherwise fixed to the breech-block or plunger C. This rod is formed with a collar, c^9, which fits into a recess in the part c^7. When a cartridge is fired, the explosion causes the breech-block or plunger C to move back until the collar c^9 impinges against the end of the recess c^{10}, when the part c^7 and the extractors o o' begin to move with the breech-block. The length of the recess c^{10} corresponds to the distance between the face of the movable part or base e^3 of the cartridge and e' of the shell.

It will be seen that the breech-block or plunger is capable of being moved back for some distance independently of the extractor.

Having now described my invention, what I claim is—

1. In a machine-gun, the combination, with the barrel, of a longitudinally-movable breech-block arranged to move or slide in line with the barrel and adapted to be driven backward from the barrel by the explosive force of a discharge, springs connected with the breech-block and the stationary portion of the gun for opposing the backward movement of the breech-block, cartridge-feeding, cartridge-exploding, and shell-extracting mechanism carried by the breech-block and operated by the movement of the same, a wheel with compartments for holding cartridges in position to be removed by the feed mechanism, and mechanism between the breech-block and cartridge-wheel for intermittently rotating the wheel in unison with the movement of the breech-block, all as set forth.

2. In a machine-gun, the combination, with the barrel, of a cartridge-delivery wheel and a cartridge-feed wheel having corresponding compartments for holding cartridges, two plungers, one forming a reciprocating breech-block arranged to move or slide in line with the barrel and adapted to force in its forward movement a cartridge from the delivery-wheel into the barrel, the other connected with the first or adapted to move simultaneously therewith and in its backward movement to transfer a cartridge from the feed-wheel to the delivery-wheel, and gearing between the plunger forming the breech-block and the cartridge-wheels by which the said wheels are intermittently rotated in unison with the movements of the plungers, all as set forth.

3. The combination, with the barrel of a machine-gun, of a wheel for presenting the cartridges in line with the barrel, a wheel and belt of cartridges passing over the same, a breech-block for forcing the cartridges from the delivery-wheel into the barrel, and a plunger connected or moving simultaneously therewith for transferring the cartridges from the belt or feed-wheel to the delivery-wheel, as and for the purpose set forth.

4. The combination, with the barrel of a machine-gun, of a delivery-wheel or one for presenting the cartridges in line with the barrel, a feed-wheel, a reciprocating breech-block for forcing the cartridges from the delivery-wheel into the barrel, an extractor pivoted to the breech-block and adapted to bind upon a shell on the recoil of the breech-block, and a plunger connected to or moving simultaneously with the breech-block for transferring the cartridges from the feed to the delivery wheel, all substantially as set forth.

5. In a machine gun, the combination, with the barrel, the two cartridge holding or feed wheels, and reciprocating breech-block or plunger, of the mechanism for causing the intermittent rotation of the feed-wheels by the movement of the breech-block or plunger, and consisting of the curved lever M, pivoted to the frame of the gun in the path of a portion of the breech-block, the sliding bar K, connected with the lever, pawls carried by the sliding bar, and ratchets or pinions on the ends of the feed-wheels, all as set forth.

6. In a machine-gun, the combination, with a longitudinally-movable breech-block and a cock or hammer pivoted thereto, of a spring-controlled adjustable arm, I, pivoted to the frame of the gun and having a beveled end that may be moved into or out of the path of movement of the hammer, whereby the latter may be automatically disengaged or held in check according to the adjustment of the movement of the arm I to or from the line of movement of the hammer, as set forth.

7. In a machine-gun, the combination, with a longitudinally-movable breech-block or plunger, of a fixed jaw, o, formed on its forward end, a movable jaw, o', pivoted to the breech-block in position to rest upon the end of a cartridge when the breech-block is in its extreme forward position, a curved arm, P, connected with the jaw o', and a guide fixed to the frame and in the path of movement of the arm P, whereby the arm is caused to release the jaw o' from its position against the cartridge, where it is held by the backward movement of the breech-block, all as set forth.